

FT-IR Spectroscopy in Microbiological and Medical Diagnostics – Workshop Report

I would like to express my appreciation to the North West Region - Analytical Division of the RSC for providing the travel grant that enabled me to attend the 2013 Fourier Transform-Infrared (FT-IR) Spectroscopy Workshop in Berlin, Germany.

The FT-IR Spectroscopy Workshop is held bi-annually, and in 2013 it was held at the Robert Koch-Institute which is responsible for disease control and prevention in Germany. The workshop comprised of oral and poster presentations from researchers in the various fields that concerned infrared and Raman spectroscopic techniques. The workshop hosted a range of current research such as: the microbiological analysis of pharmaceuticals, food and biotechnology; FTIR analysis of phytoplankton in ocean ecosystems, and the problems associated with transflection-mode IR spectroscopy to name but a few. Of particular interest to me were the talks and posters on medical spectral diagnosis using bio-fluids and tissues.

Every talk gave the opportunity to discover something new, but the talks I found particularly interesting were delivered by : Gardner *et al.*¹ who made the spectroscopic community aware of the inherent problems of transflection-mode IR microscopy, Krafft *et al.*² who discussed the potential of cell identification using Raman spectroscopy and the methodologies involved, Wood *et al.*³ who reported the use of attenuated total reflection Fourier transform infrared (ATR-FTIR) as a diagnostic method for malarial parasites in blood samples, Holman⁴ who described a method by which deep-sea microorganisms could aid in oil spill response units and finally Diem⁵ who presented the promise of early cancer diagnosis using exfoliated cells via infrared and Raman spectroscopy.

Presenting a poster on my research to a workshop community of spectroscopists allowed me to discuss my methodologies, results and overall PhD aims with other researchers. I was able to receive much valued feedback from other researchers and academics that gave their opinions and thoughts, thus opening up my mind to new perspectives and applications of my work.

To conclude, I most enjoyed having the opportunity to meet other researchers in the same field as myself. I thoroughly enjoyed meeting other PhD students from outside of the UK and discussing our projects. It was enlightening to discover the research that is carried out around the world which is brought together and discussed in a friendly environment with researchers who share the same interests and knowledge. Attending the FT-IR workshop has made me feel part of a larger research community and I am grateful to have had the experience.

¹Bassan, P., Lee, J., Pissardini, J., Gardner, P. The inherent problem of transflection-mode infrared spectroscopic microscopy and the ramifications for single cell analysis [abstract]. In: Proceedings of FTIR Spectroscopy in Microbiological and Medical Diagnostics Workshop; 2013 Oct 24-25; Berlin. Germany.

²Krafft, C., Dochow, S., Beleites, C., Popp, J. Progress in cell identification using Raman spectroscopy in Combination with Optical trapping and microfluidics [abstract]. In: Proceedings of FTIR Spectroscopy in Microbiological and Medical Diagnostics Workshop; 2013 Oct 24-25; Berlin. Germany.

³Wood, B., Khoshmanesh, A., Dixon, M., Kenny, S., Tilley, L., McNaughton, D. Towards a rapid malaria detection and quantification system using ATR-FTIR spectroscopy [abstract]. In: Proceedings of FTIR Spectroscopy in Microbiological and Medical Diagnostics Workshop; 2013 Oct 24-25; Berlin. Germany.

⁴Holman, H-Y, N. Synchrotron FTIR spectral microscopy reveals functional response of deep-sea microorganisms to the gulf of Mexico oil spill [abstract]. In: Proceedings of FTIR Spectroscopy in Microbiological and Medical Diagnostics Workshop; 2013 Oct 24-25; Berlin. Germany.

⁵Diem, M. Medical diagnosis by infrared spectral cytopathology (SCP) [abstract]. In: Proceedings of FTIR Spectroscopy in Microbiological and Medical Diagnostics Workshop; 2013 Oct 24-25; Berlin. Germany.